LACEWINGS AND AQUATIC INSECTS OF NEW ZEALAND

5. Trichoptera of North Auckland

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Abstract. Trichoptera species are listed, in a table, for Auckland and for North Auckland counties, from previous records and from identified adult specimens. Approximately 16 species are recorded in Auckland, 50 in Waitemata Co, eight others further north and one in "Northland'. Total numbers indicate that slightly more than one third of the described New Zealand species occur in North Auckland.

The caddis-flies and the larval caddis (Trichoptera) have not, in the past, been recorded in the north as much as in areas further south. This report is intended to give an indication of the distribution of these insects in North Auckland as well as of the total fauna for this area. The Trichoptera fauna of northern off-shore islands has been recorded previously (Wise 1983).

The North Island of New Zealand is almost divided at Auckland (Fig. 1) where a very narrow isthmus lies between the Waitemata and Manukau Harbours. The area north of Auckland is commonly known as North Auckland or Northland. It is approximately 320 km in length, 90 km in greatest width and ca 12,600 sq km in area. The land is very dissected, mostly hilly, with several ranges and some peaks over 700 m in height. Rainfall averages 1200-1700 mm per annum and there are many rivers, streams and other bodies of water.

Records given here are for counties and Auckland city areas as delineated on New Zealand Map Series 138A, 3rd ed. 1 August 1964 (see Fig. 1). For the present purpose Whangarei City and various towns are included here within the county boundaries.

AUCKLAND AND NORTH AUCKLAND

Auckland city areas, with extensive suburbs, are included in order to indicate the restricted fauna within their boundaries.

Waitemata Co. stretches across the island, immediately north of Auckland city areas and Manukau Hbr, and includes the Waitakere Ranges on the western side. These ranges have been well collected and supply faunal records which act as a basic list for North Auckland.

Fig. 1. Map of North Auckland showing Auckland and northern county boundaries (after NZMS 138A 3rd ed.), and some relevant place-names. Inset. New Zealand.

Rodney Co. lies between the southern Kaipara Hbr and the east coast. One collecting area is just within the southern border on the east coast and another further north around Whangateau Hbr.

Otamatea Co. lies between northern Kaipara Hbr and the east coast. It is a small county and there are few collecting records.

Hobson Co. is elongate along the west coast. Ranges in the north are covered by the Waipoua kauri forest which extends into the Hokianga Co, and the county boundary is, in part, the Waipoua River. Consequently, species recorded for Waipoua or the forest are here considered to occur in both counties but there are only three such records for this county.

Whangarei Co. is a large county to the east. Many records come from near Whangarei City which, at the northern end, lies between two small rivers. Specimens are also from Waipu caves and Waipu Gorge in the south of the county.

Hokianga Co. is north of Hobson Co. Its northern boundary lies along a range commonly known as "the Mangamukas" which drains, in part, into the Mangamuka Gorge within this county. Any record of Trichoptera from the Mangamuka area is taken as being associated with this drainage and river in Hokianga Co. Although most listed species occur in that area, species records from Waipoua forest and elsewhere in the county are included.

Bay of Islands Co. is to the east. Collecting has been concentrated about the Bay of Islands area where there are rivers and streams draining into this large bay.

Whangaroa Co., to the north on the east coast, is small and its northern boundary continues that of Hokianga Co. across the island. Collecting has mainly been done on the coast south of Whangaroa Hbr.

Mangonui Co. is the remainder of North Auckland, north of the Hokianga-Whangaroa Counties boundary. It includes a hilly mainland area, two low-lying northern peninsulas and a few on-shore (stranded) islands on those peninsulas. The biggest of these rocky on-shore islands stretches along the far northern coast between Cape Reinga and North Cape. Several streams there, particularly those draining into Spirits Bay, have provided Trichoptera records.

TRICHOPTERA FAUNA

The information presented here (Table 1) includes previously published records together with records of adult specimens, determined by the author, in the Auckland Museum collections and a few originally in the Plant Diseases Division (DSIR) collection (now in New Zealand Arthropod Collection of Plant Protection, Entomology).

Species were recorded previously by Wise (1958, 1962), McLean (1966) and particularly by Cowley (1976, 1978) and Towns (1978, 1979). Other records are from McFarlane (1951, 1960, 1964, 1966, 1976), Leader (1972), Riek (1977), and McFarlane & Cowie (1981).

Table 1. Distribution of Trichoptera for North Auckland, by counties, and Auckland.

Species	Auckland and counties*									
	Auc	Wai	Rod	Ota	Hob	Wei	Hok	Bol	Woa	Man
HYDROBIOSIDAE										
Hydrobiosis budgei		(Northland MF 60)†								
Hydrobiosis clavigera		To 78								
Hydrobiosis copis						NZAC				
Hydrobiosis parumbripennis		To 78								
		NZAC								
Hydrobiosis soror		To 78								
Psilochorema donaldsoni									MF 60	
Psilochorema macroharpax		To 78						+		
Psilochorema mimicum		+								
Psilochorema nemorale		To 78								
Edpercivalia borealis		MF 51						+		
		+								
Edpercivalia thomasoni		NZAC								
Neurochorema armstrongi		To 78				+				
Neurochorema confusum		To 78								
Hydrochorema crassicaudatum		To 78								
Atrachorema mangu							MF 64			
Costachorema hecton		To 78								
		NZAC								
Costachorema xanthoptera		To 78								
Tiphobiosis trifurca		+								
Tiphobiosis veniflex		To 78								
		NZAC								
HYDROPTILIDAE										
Oxyethira albiceps	Wi 58	Co 78	+	+	Le 72	+	+		+	+
	Co 78	To 78			+					
	+									
Paroxyethira hendersoni	Co 78	Co 78		+		+				+
	+	To 78								
Paroxyethira kimminsi		Le 72								
		To 78								
Paroxyethira tillyardi										+
PHILOPOTAMIDAE										
Hydrobiosella mixta		Co 76				+				
		Co 78								
		To 78								
		+								
Neobiosella irrorata						Wi 58				
						+				
HYDROPSYCHIDAE										
Orthopsyche fimbriata	Co 78	Co 78	Co 78			NZAC			Wi 58	Co 78
		To 78							+	
		+								

	Auc	Wai	Rod	Ota	Hob	Wei	Hok	Bol	Woa	Man
Orthopsyche thomasi		Wi 62 MF 76 Co 78 +								Co 78
Aoteapsyche catherinae								+		+
Aoteapsyche colonica	Co 78	Co 78 To 78 +	+	+		Co 78 +	+	+		Co 78 +
Aoteapsyche raruraru		Co 78 To 78 +	+			+		+		
Diplectrona bulla		+								
POLYCENTROPODIDAE										
Plectrocnemia maclachlani	Co 78	Co 78								+
Polyplectropus altera	Wi 58 Co 78 MC 81 +	Co 78 To 78 +	Co 78			NZAC		MC 81 +		
Polyplectropus impluvii	Wi 62 +		+				+	+		+
Polyplectropus waitakerensis		Wi 62 +								
ECNOMIDAE										
Ecnomina zealandica	Wi 58 +	Co 78 To 78								
PSYCHOMYIIDAE										
Zelandoptila moselyi		+	+		+	+	Wi 58 +			
CHATHAMIIDAE										
Philanisus plebeius	Co 78 NZAC	Co 78	Co 78 +	Ri 77		+	Co 78 +	+	+	+
Chathamia integripennis		+	+					Ri 77 +		
OECONESIDAE										
Oeconesus maori	Co 78	Co 78 To 78 +						+		
Zepsyche acinaces		+								
CONOESUCIDAE										
Pycnocentria evecta		Co 78 To 78	Co 78							
Pycnocentria funerea	Wi 58 +	To 78				+		+	+	
Beraeoptera roria		Co 78 To 78								
Pycnocentrodes aeris		Co 78 To 78				+				

	Auc	Wai	Rod	Ota	Hob	Wei	Hok	BoI	Woa	Man
Pycnocentrodes modesta		ML 66 Co 76 Co 78 To 78 +			Co 78	ML 66 +		ML 66 +	+	Co 78 +
Confluens hamiltoni	Co 78			MF 66						
		To 78								
Conuxia gunni		Co 78 To 79								
Olinga feredayi		ML 66 Co 78 To 78			NZAC	ML 66 +	NZAC	ML 66 +		Co 78
CALOCIDAE										
Alloecentrella magnicornis		Wi 58 Co 78 To 78 +				+				
HELICOPHIDAE										
Zelolessica cheira	Co 78	Co 78 To 78							+	+
HELICOPSYCHIDAE										
Helicopsyche albescens		To 78			+	+	+	+		
Helicopsyche zealandica		Co 78	Co 78 +						+	Co 78
LEPTOCERIDAE										
Triplectides cephalotes	Co 78 +	Co 78				Co 78	+			Co 78 +
Triplectides obsoleta	Co 78	Co 78 To 78 +				+		+		+
Triplectidina sp.n.‡	Co 78 NZAC									
Hudsonema aliena	Co 78									
Hudsonema amabilis	Co 78	Co 78 To 78			+	Wi 58 +				Co 78
Oecetis iti										Co 78 +
Oecetis unicolor		Co 78						+		+

* Auc — Auckland, Wai — Waitemata, Rod — Rodney, Ota — Otamatea, Hob — Hobson, Wei — Whangarei, Hok — Hokianga, BoI — Bay of Islands, Woa — Whangaroa, Man — Mangonui.

† References. Author, year. Co — Cowley, Le — Leader, MF — McFarlane, MC — McFarlane & Cowie, ML — McLean, Ri — Riek, To — Towns, Wi — Wise.

Specimens. + — Auckland Museum, NZAC — NZ Arthropod Collection.

‡ Now *Triplectidina moselyi*, see McFarlane & Ward 1990. The total number of described species in New Zealand is now 162.

Species records are included in the list (Table 1) under their current names. Synonymies are not noted here but cases where new species names have replaced older ones, in the northern North I, are noted below in their respective families. These species combinations and the family classifications are as given in the *Atlas* by Neboiss (1986).

HYDROBIOSIDAE. In general this is a cold-water family which is well represented in the south of New Zealand. Although several species are recorded from Waitemata Co, only a few have been taken further north and the author has seen very few specimens from the more northern counties. Two species, *Psilochorema donaldsoni* McFarlane, 1960 and *Atrachorema mangu* McFarlane, 1964 have so far been recorded only from the original localities. A record of *Tiphobiosis montana* Tillyard, 1924 by Towns (1978) is here taken to be *T. veniflex* McFarlane, 1960 as the male genitalia are somewhat similar in lateral view and *T. montana* is still only known from the original South I specimens (McFarlane & Cowie 1981).

Specimens (in NZAC) previously determined by the present author as *Costacharema psaroptera* McFarlane, 1939, together with a record of that species by Towns (1978), are now considered to be *C. hecton* McFarlane, 1981 (in McFarlane & Cowie 1981) even though this species was described and figured from only one specimen taken in the southern South I.

HYDROPTILIDAE. *Oxyethira albiceps* (McLachlan, 1862) is very common and two species of *Paroxyethira* have been taken. The occurrence of *P. tillyardi* Mosely, 1924 at one locality in Mangonui Co is interesting as Leader (1972) recorded it as a highly local species known from only two well-separated southern sites.

PHILOPOTAMIDAE. Following an indication by Wise (1970) that the true *Hydrobiosella stenocerca* Tillyard, 1924 is a South I species, North I specimens previously thought to be that species are now recognised as a distinct species, *H. mixta* (Cowley, 1976).

HYDROPSYCHIDAE. One species, *Aoteapsyche colonica* (McLachlan, 1871), appears to be common in North Auckland and four others in *Aoteapsyche* and *Orthopsyche* also occur. *Diplectrona bulla* Wise, 1958 is recorded in Waitemata Co.

POLYCENTROPODIDAE. *Polyplectropus altera* McFarlane, 1981 (in McFarlane & Cowie 1981) was described for the species previously recorded as *P. puerilis* (McLachlan, 1868) in the north and records of the latter are included here under the former name. This and two other species appear to be widespread in North Auckland.

ECNOMIDAE. A record of *Ecnomina* sp. by Towns (1978) is here taken to refer to the one known New Zealand species.

PSYCHOMYIIDAE. The one known New Zealand species has been collected at several localities.

CHATHAMIIDAE. Two species of this family of marine littoral caddis occur along the east coast and one is here confirmed for the west coast in Hokianga Co.

OECONESIDAE. Only one species is known north of Waitemata Co.

KOKIRIIDAE. The one species in this family is in the South I.

CONOESUCIDAE. *Pycnocentrodes modesta* Cowley, 1976 was described for one of the northern species of the genus and replaces *P. aureola* (McLachlan, 1868), in the north (Cowley 1978). This and other species are widespread and common in North Auckland.

CALOCIDAE. Of the two New Zealand species now in this family, *Alloecentrella magnicornis* Wise, 1958 was described from Waitemata Co and is now also known from Whangarei Co.

HELICOPHIDAE. Although McFarlane & Cowie (1981:382) commented that the *Zelolessica cheira* McFarlane, 1956 of Cowley (1978) should be *Z. meizon* McFarlane, 1981, this has been reversed by Winterbourn & Gregson (1989:41). The first species is here confirmed from adult specimens taken in northern North Auckland.

PHILORHEITHRIDAE. This family is not known from the northern North I.

HELICOPSYCHIDAE. Cowley (1978) commented that *Helicopsyche zealandica* Hudson, 1904 is the commonest species of the genus but, north of Waitemata Co, recorded it only from two coastal localities in Rodney and Mangonui Counties. Only a few specimens of the dark *H. zealandica* have been collected by the author, also near the coast, in Rodney and Whangaroa Counties. Cowley (1978) also inferred that *H. albescens* Tillyard, 1924 did not occur as far north as Auckland but the present author has found this pale species flying in large numbers near Whangarei (Whangarei Co) and at Mangamuka Gorge (Hokianga Co), and it occurs elsewhere. It should be noted that the outline figures of *H. albescens* male genitalia by Tillyard (1924) are more accurate than those of Mosely & Kimmins (1953).

LEPTOCERIDAE. Three species are common and widespread in North Auckland. One other species, *Oecetis iti* McFarlane, 1964, is, so far, only recorded from the South I and Mangonui Co in North Auckland, where it is now known from two localities.

The situation concerning previous records and identifications of *Triplectidina oreolimnetes* (Tillyard, 1924) is complex and remains to be elucidated. Wise (1970) recorded that the types of this species are not the same as those described under this name as type species of *Triplectidina* Mosely, 1936 (see Mosely & Kimmins 1953). He has since examined the specimens available to Mosely in the British Museum (Natural History) Entomology collection and found that a paratype specimen is the true *T. oreolimnetes* but others (particularly North I specimens) are the species Mosely described and figured, with a short fold in the male forewing. Specimens from Waitemata Co previously identified as *Triplectidina* (or *Triplectides*) *oreolimnetes* are found not to be that species and are here recorded, together with records of that species by Cowley (1978), as "*Triplectidina* sp.n."

DISCUSSION

Not all species records in Table 1 are confirmed for Auckland and North Auckland but even if a few species names are misidentifications the number of species may remain the same or there may still be species to be found. Sixteen species are recorded for Auckland but one is not recorded in the counties to the north. The Waitemata Co list includes 50 species, eight more species occur further north and there is one record for "Northland". The ca. 59 species listed indicate that just over one third of the 161 species presently described for New Zealand occur in North Auckland.

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